

Appl. No. 10/657,961
Amdt. Dated Feb. 3, 2005
Reply to Office Action of Nov. 3, 2004

REMARKS

The Specification

Applicant has checked the specification and found some English grammar mistakes and informalities in the drafting. Applicant has corrected the mistakes accordingly. These amendments do not add any new matter. A marked up version of the substitute specification is provided above, and a clean version of the originally filed specification is attached hereto.

The Abstract

The abstract is amended according to the specification and claims as amended.

Claim Rejections 35 U.S.C. 103

I. Response to rejection of claims 1-17 and 19-20 under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6,474,826 B1)

Applicant urges reconsideration. Examiner considers that, as regards claims 1-4, 13 and 19: Tanaka discloses a planar surface illuminator having a light guide plate (20 in Fig. 1) comprising an optical input surface (21 in Fig. 1, according to applicant's understanding), LEDs (40 in Fig. 25) positioned to a side of the light guide plate, a number of tetrahedron shaped dots having a same size (15 and 16 in Fig. 25, as stated by examiner) positioned on and integrated with the optical input surface. Examiner further considers that Tanaka teaches that the number of LEDs can be increased as required (col. 7, lines 20-24). Of course, as advised by Examiner, it would have been obvious to one having ordinary skill in the art at the time the invention was made to increase Tanaka's LEDs to three LEDs in order to improve the uniformity of the luminance. However, Tanaka provides no teaching about any relationship between the LEDs and the scattering dots for the purposes

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of ensuring uniform brightness of the planar surface illuminator. In particular, there is no suggestion to use a group of at least three scattering dots to convert Gaussian beams emitted by the point light sources to light beams having a uniform light intensity across their widths, thereby providing more uniform brightness to a liquid crystal display panel. Further, there is no suggestion to provide one such group of at least three scattering dots for each one point light source. Examiner concedes that Tanaka does not disclose a group of at least three scattering dot-patterns, each group having an LED.

Applicant respectfully traverses Examiner's reasoning. Merely adding LEDs increases the brightness of luminance of the planar surface illuminator, but does not provide any teaching or suggestion as to efficient utilization of the light energy of the LEDs. The teachings of Tanaka fall well short of the specific solution provided by the instant invention, whereby Gaussian beams emitted by point light sources such as LEDs are converted to light beams having a uniform light intensity across their widths. This solution not only avoids the darkened areas such as D, E, F, G seen in the conventional planar surface illuminator (10 in Fig. 6 of the instant specification), but also provides this advantage in an energy-efficient way, thus reducing operating costs and increasing the working lifetime of the LEDs.

In summary, there is nothing in the cited reference that would have taught or suggested to one of ordinary skill in the art that they might or should provide the planar surface illuminator of claims 1-4, 13 and 19. These claims are submitted to be unobvious and patentable over Tanaka et al. Reconsideration and withdrawal of the rejection and allowance of these claims are respectfully requested.

Accordingly, claims 5-12 and 14-17 should be allowable as being dependent on independent claim 1.

II. Response to rejection of claim 18 under 35 U.S.C. 103(a) as being unpatentable over Tanaka as applied to claim 1 above, and further in view of Colgan et al. (US 6,648,485 B1)

Applicant refers to and relies upon the above assertions regarding claim 1 and

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Tanaka. Applicant respectfully submits that Colgan does not provide any additional teaching to the teachings of Tanaka which might lead one of ordinary skill in the art to provide the invention of claim 1. That is, claim 1 is submitted to be unobvious and patentable over Tanaka et al. in view of Colgan.

On this basis, claim 18 should be allowable as being dependent on independent claim 1.

In view of the foregoing, the subject application as claimed in the pending claims is believed to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
LEU ET AL.

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